

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A liposome comprising:
 - (a) a lipid; and
 - (b) a condensing agent-nucleic acid complex encapsulated in said liposome.
2. (original) A liposome in accordance with claim 1, further comprising:
 - (c) a bilayer stabilizing component associated with said liposome.
3. (original) A liposome in accordance with claim 2, wherein said bilayer stabilizing component is reversibly associated with said liposome.
4. (original) A liposome in accordance with claim 1, wherein said lipid comprises a non-cationic lipid.
5. (original) A liposome in accordance with claim 4, wherein said non-cationic lipid is a member selected from the group consisting of phosphatidylethanolamines, phosphatidylserines and mixtures thereof.
6. (original) A liposome in accordance with claim 4, wherein said non-cationic lipid is a member selected from the group consisting of cardiolipin, diacylphosphatidic acid, N-succinyl-phosphatidylethanolamine, phosphatidic acid, phosphatidylinositol, phosphatidylglycerol, phosphatidyl ethylene glycol and mixtures thereof.

7. (original) A liposome in accordance with claim 5, wherein said non-cationic lipid is a member selected from the group consisting of dioleoylphosphatidylethanolamine, dioleoylphosphatidylserine and mixtures thereof.

8. (original) A liposome in accordance with claim 1, wherein said condensing agent is a member selected from the group consisting of polyethylenimine, polylysine, polyarginine, polyornithine, histones, protamines, polyamines, spermidine and spermine.

9. (original) A liposome in accordance with claim 8, wherein said condensing agent is polyethylenimine having a molecular weight of about 0.8 kDa to about 800 kDa.

10. (original) A liposome in accordance with claim 9, wherein said polyethylenimine has a molecular weight of about 10 kDa to about 50 kDa.

11. (original) A liposome in accordance with claim 1, wherein said condensing agent-nucleic acid complex is about 30 nm to about 60 nm in diameter.

12. (original) A liposome in accordance with claim 1, wherein said liposome is about 20 nm to about 200 nm in diameter.

13. (original) A liposome in accordance with claim 12, wherein said liposome is about 50 nm to about 150 nm in diameter.

14. (original) A liposome in accordance with claim 12, wherein said liposome is about 70 nm to about 80 nm in diameter.

15. (original) A liposome in accordance with claim 2, wherein said bilayer stabilizing component is a member selected from the group consisting of a lipid, a lipid derivative, a detergent, a polyethylene glycol, a protein, a peptide, a polyamide oligomer, a pH sensitive polymer and a PEG-lipid.

16. (original) A liposome in accordance with claim 15, wherein said bilayer stabilizing component is a PEG-lipid.

17. (original) A liposome in accordance with claim 16, wherein said lipid of said PEG-lipid stabilizing component is a member selected from the group consisting of ceramides, phosphatidylethanolamines and phosphatidylserines.

18. (original) A liposome in accordance with claim 17, wherein said PEG-lipid is a PEG-ceramide.

19. (currently amended) A liposome in accordance with claim 18, wherein said PEG-ceramide has an alkyl chain length of about C6 to about C24.

20. (currently amended) A liposome in accordance with claim 19, wherein said PEG-ceramide has an alkyl chain length of about C14 to about C20.

21. (original) A liposome in accordance with claim 16, wherein said PEG is a polyethylene glycol with an average molecular weight of about 550 to about 8500 daltons.

22. (original) A liposome in accordance with claim 21, wherein said PEG has an average molecular weight of about 2 000 to about 5000 daltons.

23. (original) A liposome in accordance with claim 9, wherein said polyethylenimine : nucleic acid ratio in said condensing agent-nucleic acid complex is about 10:1 wt/wt to about 1.5:1 wt/wt.

24. (original) A liposome in accordance with claim 23, wherein said polyethylenimine: nucleic acid ratio in said condensing agent-nucleic acid complex is about 6:1 wt/wt to about 1.5:1 wt/wt.

25. (original) A liposome in accordance with claim 23, wherein said polyethylenimine: nucleic acid ratio in said condensing agent-nucleic acid complex is about 4:1 wt/wt.

26. (original) A liposome in accordance with claim 1, wherein said lipid : nucleic acid ratio in said liposome is about 5:1 wt/wt to about 100:1 wt/wt.

27. (original) A liposome in accordance with claim 26, wherein said lipid: nucleic acid weight ratio in said liposome is about 10:1 wt/wt to about 50:1 wt/wt.

28. (original) A liposome in accordance with claim 16, wherein said PEG-lipid comprises about 5 to about 15 mol% of the composition of said liposome.

29. (original) A liposome in accordance with claim 18, wherein said PEG-ceramide comprises about 5 to about 15 mol% of the composition of said liposome.

30. (original) A liposome in accordance with claim 1, wherein said encapsulated condensing agent-nucleic acid complex represents greater than about 30% encapsulation efficiency as determined using picogreen and dextran sulfate.

31. (original) A liposome in accordance with claim 1, wherein said encapsulated condensing agent-nucleic acid complex represents greater than about 40% encapsulation efficiency as determined using picogreen and dextran sulfate.

32. (original) A method of transfecting a cell with a nucleic acid, said method comprising contacting said cell with a liposome comprising:

(a) a lipid; and
(b) a condensing agent-nucleic acid complex encapsulated in said liposome.

33. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 32, wherein said liposome further comprises:

(c) a bilayer stabilizing component associated with said liposome.

34. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 33, wherein said bilayer stabilizing component is reversibly associated with said liposome.

35. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 32, wherein said lipid comprises a non-cationic lipid.

36. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 35, wherein said non-cationic lipid is a member selected from the group consisting of phosphatidylethanolamines, phosphatidylserines and mixtures thereof.

37. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 35, wherein said non-cationic lipid is a member selected from the group consisting of cardiolipin, diacylphosphatidic acid, N-succinyl-phosphatidylethanolamine, phosphatidic acid, phosphatidylinositol, phosphatidylglycerol, phosphatidyl ethylene glycol and mixtures thereof.

38. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 36, wherein said non-cationic lipid is a member selected from the group consisting of dioleoylphosphatidylethanolamine, dioleoylphosphatidylserine and mixtures thereof.

39. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 32, wherein said condensing agent is a member selected from the group consisting of polyethylenimine, polylysine, polyarginine, polyornithine, histones, protamines, polyamines, spermidine and spermine.

40. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 39, wherein said condensing agent is polyethylenimine having a molecular weight of about 10 kDa to about 50 kDa.

41. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 32, wherein said condensing agent-nucleic acid complex is about 30 nm to about 60 nm in diameter.

42. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 32, wherein said liposome is about 70 nm to about 80 nm in diameter.

43. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 33, wherein said bilayer stabilizing component is a member selected from the group consisting of a lipid, a lipid-derivative, a detergent, a polyethylene glycol, a protein, a peptide, a polyamide oligomer, a pH sensitive polymer and a PEG-lipid.

44. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 43, wherein said bilayer stabilizing agent is a PEG-lipid.

45. (original) A method of transfecting a cell with a nucleic acid in accordance with claim 44, wherein said lipid of said PEG-lipid stabilizing agent is a member selected from the group consisting of ceramides, phosphatidylethanolamines and phosphatidylserines.

46. (original) A method of transfecting a nucleic acid into a cell in accordance with claim 45, wherein said bilayer stabilizing agent is a PEG-ceramide.

47. (original) A method of transfecting a nucleic acid into a cell in accordance with claim 46, wherein said PEG-ceramide has an alkyl chain length of about C6 to about C24.

48. (original) A method of transfecting a nucleic acid into a cell in accordance with claim 47, wherein said PEG-ceramide has an alkyl chain length of about C14 to about C20.

49. (original) A method of transfecting a nucleic acid into a cell in accordance with claim 44, wherein said PEG has an average molecular weight of about 550 to about 8500 daltons.

50. (original) A method for transfecting a nucleic acid into a cell in accordance with claim 40, wherein said polyethylenimine : nucleic acid ratio in said polyethyleniminnucleic acid complex is about 10:1 wt/wt to about 1.5:1 wt/wt.

51. (original) A method of transfecting a nucleic acid into a cell in accordance with claim 50, wherein said polyethylenimine : nucleic acid ratio in said polyethylenimine nucleic acid complex is about 4:1 wt/wt.

52. (original) A method for transfecting a nucleic acid into a cell in accordance with claim 32, wherein said lipid: nucleic acid weight ratio in said liposome is about 10:1 to about 50:1.

53. (original) A method for transfecting a nucleic acid into a cell in accordance with claim 44, wherein said PEG-lipid comprises about 5 to about 15 mol% of the composition of said liposome.

54. (original) A method for transfecting a nucleic acid into a cell in accordance with claim 46, wherein said PEG-ceramide comprises about 5 to about 15 mol% of the composition of said liposome.

55. (previously presented) A method for encapsulating a condensing agent-nucleic acid complex in a liposome, said method comprising:

(a) adding a condensing agent solution into a nucleic acid solution to form a condensing agent-nucleic acid complex; and

(b) adding said condensing agent-nucleic acid complex to a lipid suspension to form an encapsulated condensing agent-nucleic acid complex.

56. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 55, wherein said condensing agent-nucleic acid complex is formed by admixing a first condensing agent to form a precondensed nucleic acid and then adding said precondensed nucleic acid into a second condensing agent solution to form said condensing agent-nucleic acid complex wherein said first and said second condensing agents are the same or different.

57. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 55, wherein said lipid suspension comprises a non-cationic lipid.

58. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 55, wherein said condensing agent nucleic acid complex is about 30 nm to about 60 nm in diameter.

59. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 55, wherein said lipid suspension comprises a PEG-lipid.

60. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 58, wherein said PEG-lipid comprises a PEG-ceramide.

61. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 58, wherein said first condensing agent is polyethylenimine.

62. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 55, wherein said lipid: nucleic acid ratio in said liposome is about 10:1 wt/wt to about 50:1 wt/wt.

63. (original) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 58, wherein said PEG-lipid comprises about 5 to about 15 mol% of the composition of said liposome.

64. (previously presented) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 60, wherein said PEG-ceramide comprises about 5 to about 15 mol% of the composition of said liposome.

65. (previously presented) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 55, further comprising detergent dialysis.

66. (previously presented) A method for encapsulating a condensing agent-nucleic acid complex in a liposome in accordance with claim 55, wherein step (b) employs an ethanol injection.